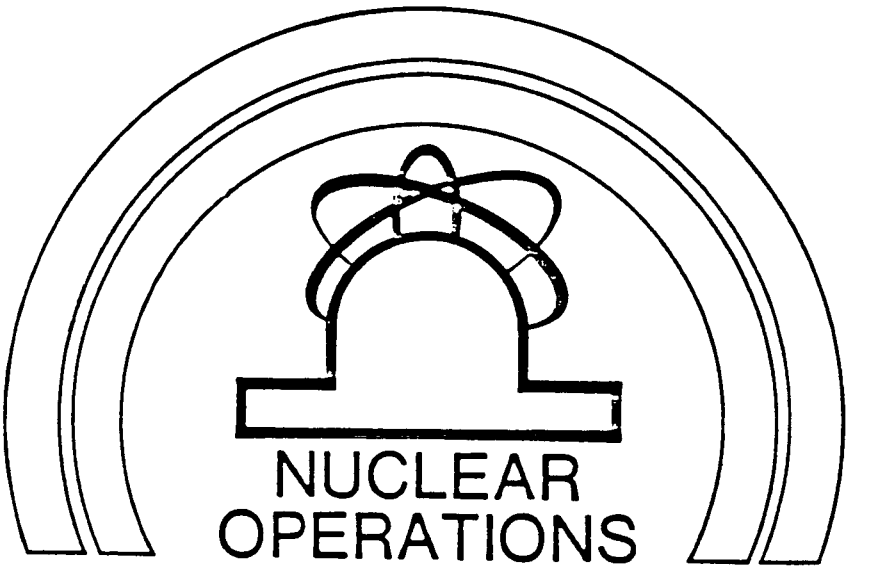
CP&L

HB ROBINSON
STEAM ELECTRIC PLANT



SRO
lesson plan

Proc-LP-35
PROCEDURES AND BASES TRAINING

Tech. Specs. LCO's, Part 8

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
INSTRUCTOR LESSON PLAN

SUBJECT: Procedures and Bases Training

SESSION NO.: PROC-LP-35

SESSION TOPIC: Technical Specifications Limiting Conditions for Operation, Part 8

TIME: 50 minutes

REVISION NO. 0

DATE: 6/25/82

APPROVAL: _____

INSTRUCTOR REFERENCE

H.B. Robinson Technical Specifications Sections 3.7, 3.15, 3.13, 3.12, and 3.11

CLASSROOM EQUIPMENT

1. Chalkboard, Chalk, and Eraser
2. Overhead Projector
3. H.B. Robinson Technical Specifications

TRAINING MATERIALS REQUIRED

Transparency:
PROC-TP-35.1 (Rev. 0) Lesson Objectives and Reason for Study

STUDENT RERERENCES

1. PROC-HO-1: Procedures and Bases Training
2. H.B. Robinson Technical Specifications Sections 3.7, 3.15, 3.13, 3.12, and 3.11

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I. INTRODUCTION

A. Lesson Objectives

PROC-TP-35.1 and Student Handout

Upon successful completion of this session, you will be able to:

1. State from memory, the Limiting Conditions for Operation for each of the following systems or events as given by the H.B. Robinson Technical Specifications:

   a. Auxiliary Electrical System

   b. Control Room Filter System

   c. Shock Suppressors

   d. Movable Incore Instrumentation

   e. Seismic Shutdown.

2. State from memory, the operator actions required by the H.B. Robinson Technical Specifications if the Limiting Conditions for Operation for the following systems or events are not met:

   a. Auxiliary Electrical System

   b. Control Room Filter System

   c. Shock Suppressors

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d. Movable Incore Instrumentation

e. Seismic Shutdown

B. Reason for Study

PROC-TP-35.1

The H.B. Robinson Technical Specifications place Limiting Conditions for Operation on certain systems and instruments in order to ensure the safe operation of the reactor.

The Senior Reactor Operator is responsible for the safe operation of the entire unit and therefore must be familiar with the systems and instruments covered by the Limiting Conditions for Operation section of the H.B. Robinson Technical Specifications.

Complete familiarity with Technical Specifications is essential, for the fast evaluation of LCO violations, in order to ensure plant safety.

II. PRESENTATION

A. Limiting Conditions for Operation, Auxiliary Electrical Systems

Tech Spec 3.7

1. Specification, reactor shall not remain critical unless

a. 110KV-4160KV Startup Transformer in service

b. 480V Buses E1 and E2 energized

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c. 4160V Buses 2 and 3 energized

d. 2 Diesel Generators operable

1) 19,000 gallons in diesel fuel tank

2) 6,000 gallons in turbine fuel oil tank

3) Protective trips bypassed

e. Both batteries operable

f. Both DC Distribution systems operable

2. Operator action if specification cannot be met

a. Startup Transformer out of service

1) Both Diesel Generators operable

a) May continue operation

b) Upon exceeding 24 hours submit a report to the NRC

2) One diesel generator inoperable with Startup Transformer inoperable also

a) Operation may continue

b) Report must be made immediately to the NRC

Normal protective trips
1) Low oil pressure
2) Low coolant pres.
3) High coolant temp.
4) High crankcase pressure
5) Start failure trip (overcrank)
o All bypassed except O/S and gen. trips

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b. One Diesel Generator out of service

1) May continue to operate for 7 days

2) Remaining Diesel Generator must be tested daily

3) Engineered Safety Features associated with in service diesel must be operable

3. Basis

o Ensure no single contingency can de-activate enough Safety Features Equipment to jeopardize plant safety

B. Limiting Conditions for Operation, Control Room Filter System — Tech Spec 3.15

1. Specification, all modes except cold shutdown

a. System must be operable

b. If system is inoperable in cold shutdown, it must be returned to service prior to reactor startup

2. Operator action if specification cannot be met

a. Return system to service in 7 days or

b. Submit a special report to the NRC in the next 14 days

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3. Basis

o Ensure that the Control Room will remain habitable during an accidental radiation release

C. Limiting Conditions for Operation, Shock Suppressors — Tech Spec 3.13

1. Specification, all modes except cold shutdown

a. All snubbers specified in table 3.13.1 shall be operable

b. A snubber which is inoperable while the reactor is in cold shutdown shall be returned to service prior to the reactor being made critical

2. Operator action if specification cannot be met

a. Conduct engineering analysis to determine effect on supported equipment

b. If supported equipment is adversely affected

1) Declare supported equipment inoperable

2) Take actions in accordance with Tech. Specs. for that specific piece of equipment

c. If supported equipment is uneffected

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1) Determine if a future event will damage the component, if it will,

a) Repair or replace snubber in 72 hours or

b) Delcare supported component inoperable

2) If it will not be affected

a) Reactor may remain at power

b) Snubber may be repaired on a routine basis

d. If a snubber is inoperable during cold shutdown it shall be returned to service piror to the reactor going critical

3. Basis

o Ensure equipment is supported to prevent unrestrained pipe movements under dynamic load so as to prevent system damage

D. Limiting Conditions for Operation, Movable Incore Instrumentation — Tech Spec 3.11

1. During recalibration of Excore Symmetrical Offset Detection System

a. At least 16 thimbles shall be accessible

b. At least 2 thimbles operable per quadrant

c. Sufficient incore detectors shall be operable

2. Limits if recalibration requirements for excore symmetrical off-set not met

a. Power shall be limited to 90% of rated power for 3 loop operation

b. Power shall be limited to 40% for two loop operation

3. Basis

o Ensure excore power instruments and related protective circuits may be properly calibrated

E. Limiting Conditions for Operating, Seismic Shutdown — Tech Spec 3.12

1. Strong Motion Recorder indicates Operating Basis Earthquake

a. Shut the reactor down

b. Inspect facility for damage

2. Basis

o Ensure that operation of the plant does not adversely affect the health and welfare of the public following an Operating Basis Earthquake

III. SUMMARY

A. OBJECTIVE 1: State from memory, the Limiting Conditions for Operation for each of the following systems or events as given by the H.B. Robinson Technical Specifications:

1. Auxiliary Electrical System
    a. Startup Transformer
    b. 4160V Buses
    c. 480V Buses
    d. Diesel Generators
    e. DC Distribution
2. Control Room Filter System
3. Shock Suppressors
4. Movable Incore Instrumentation
    a. Thimbles
    b. Detectors
5. Seismic Shutdown

B. OBJECTIVE 2: State from memory, the operator actions required by the H.B. Robinson Technical

Specifications if the Limiting Conditions for Operation for the following systems or events are not met:

1. Auxiliary Electrical System
   a. Startup Transformers
   b. 4160V Buses
   c. 480V Buses
   d. Diesel Generators
   e. DC Distribution
2. Control Room Filter System
3. Shock Suppressors
4. Movable Incore Instrumentation
   a. Thimbles
   b. Detectors
5. Seismic Shutdown

IV. EVALUATION

A. OBJECTIVE 1 QUESTIONS

1. Which 4160 Volt Buses are required to be energized when the reactor is critical?

Answer: 4160 Volt Buses 2 and 3.

2. How many incore thimbles are required to be accessible when the reactor is critical?

Answer: 16 thimbles are required to be accessible with at least two thimbles in each quadrant.

B. OBJECTIVE 2 QUESTIONS

1. How long may the reactor remain at power with one Diesel Generator out of service?

Answer: 7 days.

2. The reactor is at power when it is found that the snubber on the "A" RHR Pump suction line is out of service. What operator actions are required to be taken?

Answer: An engineering analysis must be completed within 72 hours to determine if the component supported by the snubber is adversely affected. If it is, the component supported by the defective snubber must be placed out of service and the appropriate actions required by Technical Specifications must be completed. If the component is not damaged and engineering analysis indi-

cates the snubber is not needed for normal operation and design accidents the snubber may be replaced or repaired on a routine basis.

V. ASSIGNMENTS

A. Review PROC-HO-1: Procedures and Bases Training

B. Review H.B. Robinson Technical Specification, Sections 3.7, 3.15, 3.13, 3.12, and 3.11.

PROC-TP-35.1

LESSON OBJECTIVES

UPON SUCCESSFUL COMPLETION OF THIS SESSION, YOU WILL BE ABLE TO:

1. STATE FROM MEMORY, THE LIMITING CONDITIONS FOR OPERATION FOR EACH OF THE FOLLOWING SYSTEMS OR EVENTS AS GIVEN BY THE H.B. ROBINSON TECHNICAL SPECIFICATIONS:

   A. AUXILIARY ELECTRICAL SYSTEM
   B. CONTROL ROOM FILTER SYSTEM
   C. SHOCK SUPPRESSORS
   D. MOVABLE INCORE INSTRUMENTATION
   E. SEISMIC SHUTDOWN.

2. STATE FROM MEMORY, THE OPERATOR ACTIONS REQUIRED BY THE H.B. ROBINSON TECHNICAL SPECIFICATIONS IF THE LIMITING CONDITIONS FOR OPERATION FOR THE FOLLOWING SYSTEMS OR EVENTS ARE NOT MET:

   A. AUXILIARY ELECTRICAL SYSTEM
   B. CONTROL ROOM FILTER SYSTEM
   C. SHOCK SUPPRESSORS
   D. MOVABLE INCORE INSTRUMENTATION
   E. SEISMIC SHUTDOWN.

REASON FOR STUDY

THE H.B. ROBINSON TECHNICAL SPECIFICATIONS PLACE LIMITING CONDITIONS FOR OPERATION ON CERTAIN SYSTEMS AND INSTRUMENTS IN ORDER TO ENSURE THE SAFE OPERATION OF THE REACTOR.

THE SENIOR REACTOR OPERATOR IS RESPONSIBLE FOR THE SAFE OPERATION OF THE ENTIRE UNIT AND THEREFORE MUST BE FAMILIAR WITH THE SYSTEMS AND INSTRUMENTS COVERED BY THE LIMITING CONDITIONS FOR OPERATION SECTION OF THE H.B. ROBINSON TECHNICAL SPECIFICATIONS.

COMPLETE FAMILIARITY WITH TECHNICAL SPECIFICATIONS IS ESSENTIAL, FOR THE FAST EVALUATION OF LCO VIOLATIONS, IN ORDER TO ENSURE PLANT SAFETY.